WHAT IS CLAIMED IS:

1. A modulation circuit for obtaining a modulated signal, by modulating a carrier signal using a modulating signal, comprising:

means for extracting a phase signal and an amplitude signal from the modulating signal;

means for converting the phase signal into an analog signal;

first means for generating a first oscillation frequency signal;

means for modulating, in use of quadrature modulation, the analog signal output from the converting means to an IF signal, based on the first oscillation frequency signal;

second means for generating a second oscillation frequency signal,

means for converting the frequency of the IF signal output from the modulating means and converting the IF signal into a RF signal, based on the second oscillation frequency signal;

means for delaying the amplitude signal output from the extracting means for a time; and

means for varying the amplitude of the RF signal and amplifying the varied RF signal in accordance with the delayed amplitude signal output from the delaying means, and for outputting the amplified RF signal.

2. The modulation circuit according to claim 1,

further comprising a power amplifying circuit for calculating a mean value of power values each of which corresponds to an output signal output from the modulation circuit and amplifying the amplified RF signal output from the varying means based on the mean value.

3. The modulation circuit according to claim 1, wherein the delaying means comprises:

means for setting the time; and

a delay circuit for delaying the amplitude signal output from the extracting means in accordance with the time set by the setting means.

4. The modulation circuit according to claim 3, wherein the setting means includes a circuit for setting the time based on at least one of signal format of the modulating signal, the frequency of the modulating signal, and the ambient temperature.

5. The modulation circuit according to claim 1, further comprising means for correcting the delayed amplitude signal output from the delaying means to correct the linearity of controlling gain variation in the varying means using an equation or a conversion table.

6. A modulation circuit for obtaining a modulated signal, by modulating a carrier signal using a modulating signal, comprising;

means for extracting a phase signal and an

amplitude signal from the modulating signal;

means for digitally modulating, in use of quadrature modulation, the phase signal output from the extracting means to an IF signal;

means for converting the IF signal output from the modulating means into an analog IF signal;

means for converting the frequency of the analog IF signal output from the converting means and converting the analog IF signal into a RF signal;

means for delaying the amplitude signal output from the extracting means for a time; and

means for varying the amplitude of the RF signal and amplifying the varied RF signal in accordance with the delayed amplitude signal output from the delaying means, and for outputting the amplified RF signal.

7. The modulation circuit according to claim 1, wherein the frequency converting means includes:

a first filter to limit the frequency band of the IF signal;

a first counting-down circuit to divide the frequency of the IF signal;

a multiplier to multiply the second oscillation frequency signal and the RF signal;

a second filter to limit the frequency band of an output signal from the multiplier;

a second counting-down circuit to divide the frequency of the output signal;

a phase difference detector to detect the phase difference between output signals from the first and second counting-down circuits; and

a third filter to smooth a signal corresponding to the detected phase difference;

wherein the first, second, and third filters, the first and second counting-down circuits, the multiplier, and the phase difference detector are comprised in a phase-synchronizing modulation loop.

8. The modulation circuit according to claim 1, wherein the frequency converting means includes:

a first filter to limit the frequency band of the IF signal;

a multiplier to multiply the output signal from the first filter and the second oscillation frequency signal; and

a second filter to limit the frequency band of an output signal output from the multiplier.

9. A cellular phone comprising the modulation circuit according to claim 1.

10. A method for obtaining a modulated signal, by modulating a carrier signal using a modulating signal, comprising:

extracting a phase signal and an amplitude signal from the modulating signal;

converting the phase signal into an analog signal;

first generating a first oscillation frequency

signal;

modulating, in use of quadrature modulation, the analog signal output from the converting step to an IF signal, based on the first oscillation frequency signal;

second generating a second oscillation frequency signal;

converting the frequency of the IF signal output in the modulating step and converting the IF signal into a RF signal, based on the second oscillation frequency signal;

delaying the amplitude signal output in the extracting step for a time; and

varying the amplitude of the RF signal and amplifying the varied RF signal in accordance with the delayed amplitude signal output in the delaying step, and outputting the amplified RF signal.

11. The method according to claim 10, further comprising:

calculating a mean value of power values each of which corresponds to an output signal due to the method; and

amplifying the amplified RF signal output in the amplifying step based on the mean value.

12. The method according to claim 10, wherein the delaying step comprises:

setting the time; and

delaying the amplitude signal output in the extracting step in accordance with the time set by the setting step.

13. The method according to claim 12, wherein the setting step includes setting the time based on at least one of signal format of the modulating signal, the frequency of the modulating signal, and the ambient temperature.

14. The method according to claim 10, further comprising correcting the delayed amplitude signal output in the delaying step to correct the linearity of controlling gain variation in the amplifying step using an equation or a conversion table.

15. A method for obtaining a modulated signal, by modulating a carrier signal using a modulating signal, comprising:

extracting a phase signal and an amplitude signal from the modulating signal;

digitally modulating, in use of quadrature modulation, the phase signal to an IF signal;

converting the IF signal into an analog IF signal;

converting the frequency of the analog IF signal and converting the analog IF signal into a RF signal;

delaying the amplitude signal for a time; and

varying the amplitude of the RF signal and amplifying the varied RF signal in accordance with the delayed amplitude signal output in the delaying step,

and outputting the amplified RF signal.

16. The method according to claim 10, wherein the frequency converting step includes:

first limiting the frequency band of the IF signal;

first dividing the frequency of the IF signal;

multiplying the second oscillation frequency signal and the RF signal;

second limiting the frequency band of an output signal output in the multiplying step;

second dividing the frequency of the output signal;

detecting the phase difference between output signals from the first and second dividing steps; and

smoothing a signal corresponding to the detected phase difference;

wherein the first and second limiting steps, the first and second dividing steps, the multiplying step, the detecting step, and the smoothing step are comprised in a phase-synchronizing modulation loop step.

17. The method according to claim 10, wherein the frequency converting step includes:

first limiting the frequency band of the IF signal;

multiplying the output signal from the first limiting step and the second oscillation frequency

signal; and

second limiting the frequency band of an output signal output in the multiplying step.

18. The modulation circuit according to claim 2, wherein the delayed amplitude signal output from the delaying means and an output gain signal designating the output electric power average value to be transmitted being synthesized as a synthesized signal, the synthesized signal is input to the power amplifying circuit.

19. A modulation circuit for obtaining a modulated signal, by modulating a carrier signal using a modulating signal, comprising:

means for extracting a phase signal and an amplitude signal from the modulating signal;

means for converting the phase signal into an analog signal;

first means for generating a first oscillation frequency signal;

means for modulating, in use of quadrature modulation, the analog signal output from the converting means to an IF signal, based on the first oscillation frequency signal;

second means for generating a second oscillation frequency signal,

means for converting the frequency of the IF signal output from the modulating means and converting

the IF signal into a RF signal, based on the second oscillation frequency signal;

means for delaying the amplitude signal output from the extracting means for a time; and

means for varying the amplitude of the RF signal and amplifying the varied RF signal in accordance with the delayed amplitude signal output from the delaying means, and for outputting the amplified RF signal;

wherein the delaying means comprises:

means for setting the time based on parameters or variation factors of transfer time differences; and

a delay circuit to delay the amplitude signal output from the extracting means in accordance with the time set in the setting means.

20. The modulation circuit according to claim 4, wherein the setting means includes a circuit for setting the time, based on at least one of the modulation index, the roll off rate of the modulating signal, the supply voltage to the modulation circuit, and the gain in each means.

21. The modulation circuit according to claim 5, wherein the correcting means corrects to obtain the linearity of relationship between the output power of the outputting means and the modulating signal.

22. A modulation circuit for obtaining a modulated signal, by modulating a carrier signal using a modulating signal, comprising:

means for extracting a phase signal and an amplitude signal from the modulating signal;

means for converting the phase signal into an analog signal;

first means for generating a first oscillation frequency signal;

means for modulating, in use of quadrature modulation, the analog signal output from the converting means to an IF signal, based on the first oscillation frequency signal;

second means for generating a second oscillation frequency signal,

means for converting the frequency of the IF signal output from the modulating means and converting the IF signal into a RF signal, based on the second oscillation frequency signal;

means for delaying the amplitude signal output from the extracting means for a time; and

means for varying the amplitude of the RF signal and amplifying the varied RF signal in accordance with the delayed amplitude signal output from the delaying means, and for outputting the amplified RF signal;

wherein the frequency converting means includes a loop for converting the frequency of the IF signal output from the modulating means, based on the IF signal and the RF signal.

23. The modulation circuit according to claim 1,

wherein the frequency converting means includes:

a first filter to limit the frequency band of the IF signal;

a multiplier to multiply the second oscillation frequency signal and the RF signal;

a second filter to limit the frequency band of an output signal from the multiplier;

a phase difference detector to detect the phase difference between output signals from the first and second filter;

a third filter to smooth a signal corresponding to the detected phase difference;

wherein the first, second, and third filters, the multiplier, and the phase difference detector are comprised in a phase-synchronizing modulation loop.

24. The method according to claim 11, wherein the delayed amplitude signal output in the delaying step and an output gain signal designating the output electric power average value to be transmitted being synthesized as a synthesized signal, the output signal is output based on the synthesized signal.

25. A method for obtaining a modulated signal, by modulating a carrier signal using a modulating signal, comprising:

extracting a phase signal and an amplitude signal from the modulating signal;

converting the phase signal into an analog signal;

first generating a first oscillation frequency signal;

modulating, in use of quadrature modulation, the analog signal to an IF signal, based on the first oscillation frequency signal;

second generating a second oscillation frequency signal;

converting the frequency of the IF signal output in the modulating step and converting the IF signal into a RF signal, based on the second oscillation frequency signal;

delaying the amplitude signal output in the extracting step for a time; and

varying the amplitude of the RF signal and amplifying the varied RF signal in accordance with the delayed amplitude signal output in the delaying step;

wherein the delaying step comprises:

setting the time based on parameters or variation factors of transfer time differences; and

delaying the amplitude signal output in the extracting step in accordance with the time set in the setting step.

26. The method according to claim 13, wherein the setting step includes setting the time, based on at least one of the modulation index, the roll off rate of the modulating signal, the supply voltage, and the gain in each means.

27. The method according to claim 14, wherein the correcting step corrects to obtain the linearity of relationship between the output power of the outputting step and the modulating signal.

28. A method for obtaining a modulated signal, by modulating a carrier signal using a modulating signal, comprising:

extracting a phase signal and an amplitude signal from the modulating signal;

converting the phase signal into an analog signal;

first generating a first oscillation frequency signal;

modulating, in use of quadrature modulation, the analog signal to an IF signal, based on the first oscillation frequency signal;

second generating a second oscillation frequency signal;

converting the frequency of the IF signal output in the modulating step and converting the IF signal into a RF signal, based on the second oscillation frequency signal;

delaying the amplitude signal output in the extracting step for a time; and

varying the amplitude of the RF signal and amplifying the varied RF signal in accordance with the delayed amplitude signal output in the delaying step;

wherein the frequency converting step includes a

phase-synchronizing modulation loop step for converting the frequency of the IF signal output in the modulating step, based on the IF signal and the RF signal.

29. The method according to claim 10, wherein the frequency converting step includes:

first limiting a frequency band of the IF signal output in the modulating step;

multiplying the second oscillation frequency signal and the RF signal;

second limiting a frequency band of an output signal from the multiplying step;

detecting the phase difference between output signals from the first and second limiting step;

smoothing a signal corresponding to the phase difference;

wherein the first and second limiting steps, the multiplying step, the detecting step, and the smoothing step are comprised in a phase-synchronizing modulation loop step.